

WHAT IS CLAIMED IS:

1. A spark plug for use in an internal combustion engine, comprising:

a tubular insulator having an axial hole extending therethrough in an axial direction;

a center electrode fitted into the axial hole and having a distal end portion protruding from a distal end of the insulator; and

a single or a plurality of ground electrodes located diametrically outside of the center electrode and positionally related to a distal end portion of the insulator and the distal end portion of the center electrode such that at least a portion of spark discharge generated between the ground electrode(s) and the distal end portion of the center electrode includes creeping discharge along a surface of the distal end portion of the insulator;

at least the distal end portion of the center electrode being configured such that at least a surface of the distal end portion of the center electrode is formed of an Ni alloy which contains Ni as a primary component in an amount of 80 wt% or more and Fe and Cr as secondary components in a total amount of 2.5 wt% to 10.0 wt%;

wherein the Ni alloy further contains Al as a secondary component in an amount of 0.2 wt% to 0.8 wt%.

2. A spark plug for use in an internal combustion engine according to claim 1, wherein the single ground electrode or at least one of the plurality of ground electrodes is disposed such that a distal end face of the ground electrode faces a portion of a circumferential surface of the distal end portion of the center electrode while at least a part of the distal end portion of the insulator intervenes therebetween.

3. A spark plug for use in an internal combustion engine according to claim 1, wherein the Ni alloy contains Fe, as a secondary component, in an amount of 1.5 wt% to 5.0 wt%.

4. A spark plug for use in an internal combustion engine according to claim 1, wherein the Ni alloy contains Cr, as a secondary component, in an amount of 1.5 wt% to 5.0 wt%.

5. A spark plug for use in an internal combustion engine according to claim 1, wherein the Ni alloy contains at least any one of Mn, Cu, and Co as a secondary component.

6. A spark plug for use in an internal combustion engine according to claim 5, wherein, when b represents

the content (wt%) of Al, and c represents the total of Mn, Cu, and Co contents (wt%), the Ni alloy satisfies

$$0.3b \leq c \leq 6.0b.$$

7. A spark plug for use in an internal combustion engine according to claim 1,

wherein the center electrode comprises a core member formed of Cu or a Cu alloy, and a covering member formed of the Ni alloy and covering at least a distal end portion of the core member such that a distal end of the core member is located on a proximal side with respect to a distal end face of the center electrode; and

the Ni alloy contains C as a secondary component in an amount of 0.003 wt% to 0.05 wt%.

8. A spark plug for use in an internal combustion engine according to any one of claims 1 to 7, further comprising a metallic shell disposed in such a manner as to surround a periphery of the insulator and such that the distal end portion of the insulator protrudes beyond a distal end face of the metallic shell,

wherein the metallic shell has an outside diameter of 10.1 mm or less at its distal end.